

Claims

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

5 1. In combination with a system for controlling the flow of air between an outside environment, a blower having an intake port and an exhaust port and an air mattress having at least one chamber, a valve comprising;

a housing including an inlet port communicating with said exhaust port of said blower, at least one air mattress supply port communicating with at least one
10 chamber of an air mattress through at least one line communicating with at least one chamber of an air mattress and an outlet port communicating with said intake port of said blower,

a gate member received within said housing, said gate member divided into a first portion and a second portion, said first portion having a first port
15 communicating with the outside environment and a second port, said second portion having a third port,

the gate member movable between a first position and a second position, such that when said gate member is in said first position, said second port of said gate member communicates with said outlet port of said housing and said second
20 portion of said gate member communicates with said inlet port of said housing and said at least one air mattress supply port thereby communicating the blower intake with the outside environment and communicating the blower exhaust with the at least one air mattress supply ports,

and such that when said gate member is in said second position, said third port of said gate member communicates with said outlet port of said housing and said first portion of said gate member communicates with said inlet port of said housing and said second portion of said gate member communicates with said at least one air mattress supply port thereby communicating the blower exhaust with the outside environment and communicating the blower intake with the at least one mattress supply port to quickly deflate the air mattress.

2. A system for controlling the flow of air between an outside environment, a blower having an intake port and an exhaust port and an air mattress having at least one chamber, comprising;

a valve including a housing and a gate member received by said housing, said housing having an inlet port communicating with said exhaust port of said blower, an outlet port communicating with said intake port of said blower, at least one air mattress supply port communicating with said at least one chamber of said air mattress via at least one air mattress supply line,

said gate member having at least one first port communicating with the outside environment, said gate member movable between a first position for operating in a first pressurizing mode and a second position for operating in a second vacuum mode, such that when said gate member is in said first position, said at least one first port of said gate member communicates with said outlet port of said housing and said inlet port of said housing communicates with said at least one air mattress supply port of said housing so that air from the outside

environment passes through the valve to the blower intake and air from the blower exhaust passes through the valve to the said at least one air mattress supply line thus supplying air to said at least one chamber of said air mattress, and such that when said gate member is in said second position, said at least one first port of said gate member communicates with said inlet port of said housing and said outlet port of said housing communicates with said at least one air mattress supply port of said housing so that air from at least one air mattress supply line passes through the valve to said blower intake and air from said blower exhaust passes through said valve to said outside environment thus rapidly deflating said at least one chamber of said air mattress.

3. The system of claim 2, wherein

said at least one line communicating with said at least one air mattress chamber has an electrically controlled valve for controlling the amount of air that can flow therethrough.

4. The system of claim 2, wherein

said at least one air mattress supply line as an electrically controlled valve for controlling the amount of air that can flow therethrough, and,

said at least one air mattress supply line has a pressure sensor interposed between said valve and said at least one chamber of said air mattress for sensing the back pressure in said at least one chamber of said air mattress, and wherein,

a control unit operatively connected to said pressure sensor and said at least one electrically controlled valve receives signals from the pressure sensor and responds to those signals by opening or closing said at least one valve until the pressure sensor indicate a predetermined pressure.

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5. The system of Claim 2, wherein

said at least one air mattress supply line as an electrically controlled valve for controlling the amount of air that can flow therethrough, and,

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said at least one air mattress supply line has a pressure sensor interposed between said valve and said at least one chamber of said air mattress for sensing the back pressure in said at least one chamber of said air mattress, and,

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a control unit is operatively connected to said pressure sensor and said valve, the programmable control unit receiving pressure signals from the pressure sensor and responding to those pressure signals by (1) determining if the pressure signal indicates if a pressure is within a selected range of pressures or above or below a selected range of pressures, (2) transmitting a signal to incrementally close said valve if the pressure in said at least one line is above the selected range of pressures, (3) transmitting a signal to incrementally open said valve if the pressure in said at least one line is below the selected range of pressures.

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6. The system of Claim 2, wherein

said at least one air mattress supply line is a plurality of lines connecting between a plurality of air mattress supply ports in said housing and a plurality of

chambers in said air mattress, and each supply line has an electrically controlled valve for controlling the amount of air that can flow therethrough, and,

at least one of said air mattress supply lines has a pressure sensor interposed between said electrically controlled valve and said at least one chamber of said air mattress for sensing the back pressure in said at least one chamber of said air mattress, and,

a control unit is operatively connected to said pressure sensor and said electrically controlled valve, the programmable control unit receiving pressure signals from the pressure sensor and responding to those pressure signals by (1) determining if the pressure signal indicates if a pressure is within a selected range of pressures or above or below a selected range of pressures, (2) transmitting a signal to incrementally close said valve if the pressure in said at least one line is above the selected range of pressures, (3) transmitting a signal to incrementally open said valve if the pressure in said at least one line is below the selected range of pressures.